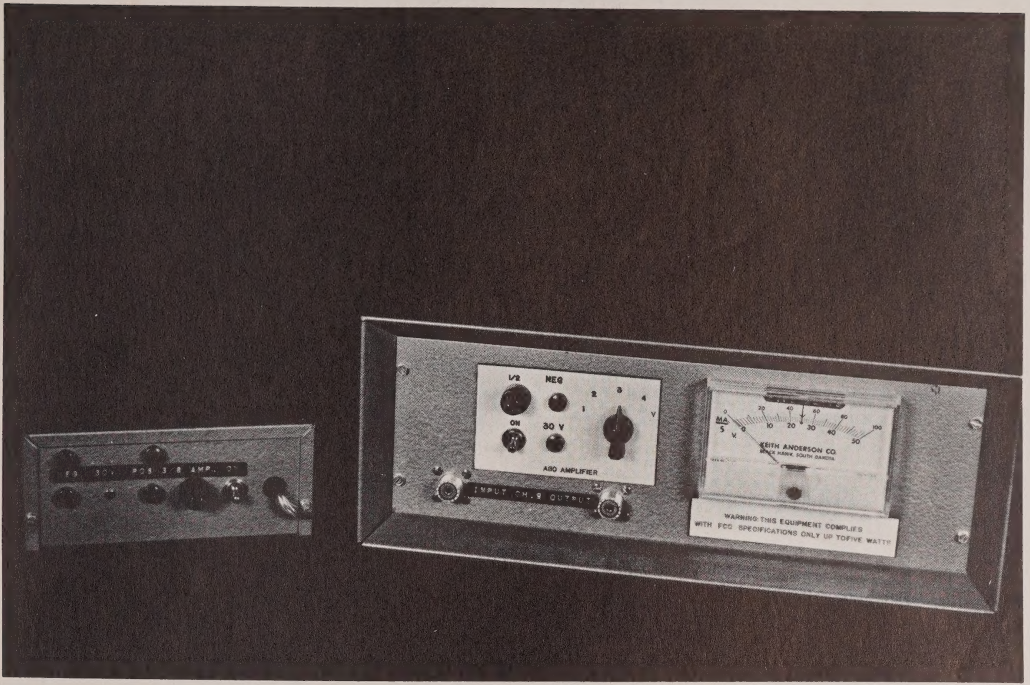

A-110 AMPLIFIER

KEITH ANDERSON CO. BLACK HAWK, S. DAK.

A-110 INSTALLATION INSTRUCTIONS

Please refer to the detailed instructions in the T-99 manual.

A weather proof housing such as a discarded refrigerator should be utilized, even when the equipment is installed in a building.

Antennas may require up to 200 ft. separation between the receiving antenna and all transmitting antennas at the site.

The T-99 and A-110 may both be powered from a single A.P.S.- 30 power supply, or thermoelectric or solar power generator with 15 watt minimum output at 30 volts D.C.

Place the A-110 on top of the T-99 driver. Connect the output of the T-99 to the input of the A-110 with the cable supplied. If more than one output antenna system is to be operated, we can supply matching transformers for two or four antenna connections. Be sure all antennas and cables are 75 ohm impedance.

Connect the power supply to the A-110 with the power wire provided.

A-110 OUTPUT ADJUSTMENT.

Before turning the translator and amplifier power on, turn the power output control fully counter clockwise.

When the antennas and power supply are connected, turn on the power supply, then the T-99 and A-110. Adjust the T-99 power output control until the A-110 reads center scale (5 watts) with the meter switch in position No 3. DO NOT EXCEED FIVE WATTS on the A-110 meter, as this would cause sync compression and inter modulation.

Adjust the audio level control with the red line at the closest position to the "low" side which will produce good sound on a television receiver.

This completes the installation. No further adjustments should be required for several years provided the antennas and cables are kept in good condition.

A-110 TECHNICAL SPECIFICATIONS.

INPUT FREQUENCY	ANY V.H.F. T.V. CHANNEL
INPUT LEVEL	ONE WATT PEAK VISUAL .1 WATT AURAL
OUTPUT FREQUENCY	SAME AS INPUT CHANNEL
OUTPUT LEVEL	FIVE WATTS PEAK VISUAL .5 WATT AURAL
EMISSION TYPES	A5 VISUAL F3 AURAL
SPURIOUS OUTPUTS (MAXIMUM)	50dB. BELOW PEAK VISUAL
HARMONICS (MAXIMUM)	70dB. BELOW PEAK VISUAL (-80dB. TYPICAL)
IMPEDANCE	75 OHMS INPUT AND OUTPUT COAXIAL (UNBALANCED)
POWER REQUIREMENTS (MAXIMUM)	16 WATTS 100-130 VOLTS A.C. 12 WATTS AT 30 VOLTS D.C. (10 TYPICAL)
AMBIENT TEMPERATURE	-40 to +60 DEGREES CENTIGRADE (-40 TO +140 FAHRENEIT)
DIMENSIONS	R.F. HOUSING- 6 x 9 x 15½ INCHES POWER SUPPLY- 3 x 5 x 7 INCHES
WEIGHT	R.F. UNIT- 5 LBS POWER SUPPLY- 2 LBS
METERING	
POSITION 1	EMITTER CURRENT INPUT = 250 - 400 mA
POSITION 2	BASE VOLTAGE = .7 VOLTS
POSITION 3	POWER OUTPUT = 5 WATTS
POSITION 4 and 5	D.C. SUPPLY VOLTAGE = 30 VOLTS

A-110 DESCRIPTION.

The A-110 is a solid state power amplifier designed as an accessory for the T-99, F.C.C. type accepted V.H.F. Translator.

It will deliver five watts peak visual power output when driven at one watt input from the T-99. It may be operated at lower power outputs when licensed accordingly.

All components have a life expectancy exceeding ten years, virtually eliminating maintenance costs and performance variations. Our solid state translators have operated continuously for over five years with no failures and no measurable change in any characteristics.

The original push-pull circuitry with built in triple-tuned output filter provides better harmonic suppression than F.C.C. requirements and reduces spurious emissions to conform with the 1968 amended translator rules.

The A-110 weighs only seven pounds including external DC power supply. The amplifier aluminum shadow housing dimensions are 6 by 9 by 15½ inches. The power supply dimensions are 3 by 5 by 7 inches.

Metering is built in for the regulated D.C. supply voltage, emitter input current, base voltage and power output.

A-110 OVERALL OPERATION.

1. INPUT: The R.F. input must be provided by our F.C.C. type accepted one watt V.H.F. Translator, operating within all F.C.C. prescribed limits and with inpedance matched for 70 to 75 ohm loads. The driving Translator code identifier must be installed and operating.

   Peak visual output of the driving Translator must be one watt maximum. The aural level control should be adjusted for .1 watt output to maintain best color quality and minimize intermodulation.

2. ATTENUATOR: A fixed input attenuator is factory installed to reduce the overall gain to 7dB. This enables the driving Translator to operate at its one watt metered output with the amplifier delivering five watt peak visual output. This precise gain provides a supplemental verification of the indirectly metered A-110 power output. Typical values of the attenuator range from 3dB. on channel 2 to zero on channel 13.

3. AMPLIFIER: The push pull V.H.F. power amplifier incorporates proven transistors conservatively operated. They are biased for optimum amplitude linearity and minimum intermodulation between visual and aural carriers, and operate with a typical peak visual referred efficiency of 50% during average visual modulation.

4. FILTER: The built-in channel pass filter provides impedance match and selectivity. It is triple tuned for excellent harmonic rejection and flat 6MHz bandpass. Three traps are designed into the filter for reduction of spurious frequencies at 4.5MHz above the aural carrier and 4.5 and 9MHz below the visual carrier. The output anti-resonant section utilizes heavy wire directly between the antenna connector and chassis ground. This equalizes any lightning or static charges which might otherwise damage internal components.

5. METERING: A five position switch and 100 microamp meter are built in for monitoring power output, input current and power base voltage and D.C. power supply voltage. Power output metering is calibrated by installing a fixed metering resistor (R-10) to read five watt (centre scale) output while measuring power into a precisely calibrated peak reading R.F. meter with 75 ohm resistive attenuation.

6. POWER SUPPLY: The A.C. to 30 V.D.C. power supply incorporates a bridge rectifier and solid state regulator, with amplified series regulation. With 100 to 130 volts, 60 or 50 cycle input, the supply will deliver a regulated, well filtered D.C. output from zero to 500 milliamperes. A thermoelectric, battery, wind or solar D.C. supply may be used with the A-110, but only if precisely regulated at 30 volts D.C. and positively grounded.

A-110 BLOCK DIAGRAM.